



**Green Cities California**

# **Master Environmental Assessment on Single-Use and Reusable Bags**

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**Prepared for:**

Carol Misseldine  
Green Cities California  
cmisseldine@comcast.net  
(415) 388-5273

**Prepared by:**

ICF International  
620 Folsom Street, Suite 200  
San Francisco, CA 94107  
Contact: Terry Rivasplata  
trivasplata@icfi.com  
(916) 231-9537

## **Executive Summary**

Full report available at:  
[www.greencitiescalifornia.org/mea](http://www.greencitiescalifornia.org/mea)

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Carol Misseldine, Coordinator  
Green Cities California  
415/388-5273  
[cmisseldine@comcast.net](mailto:cmisseldine@comcast.net)  
[www.greencitiescalifornia.org](http://www.greencitiescalifornia.org)

## Executive Summary

The California Environmental Quality Act (CEQA) authorizes the use of MEAs “in order to provide information which may be used or referenced in EIRs or negative declarations” (CEQA Guidelines Section 15169). An MEA is not an Environmental Impact Report (EIR) or other CEQA analysis because it does not reach conclusions regarding local significance and does not propose either mitigation measures or alternatives.

This is a Master Environmental Assessment (MEA) on the subject of single-use, or disposable, grocery shopping bags (i.e., bags used at checkout in grocery stores). As such, it brings together a comprehensive collection of information about single-use grocery bags including existing regulations, life-cycle analysis, potential impacts on the environment, reusable bags, and the use of fees to encourage consumers to reuse bags. The information found herein will help cities and counties to determine the significance of actions that they may take to cut back on the use of single-use grocery bags.

This grocery bag MEA provides local governments a one-stop reference about the impacts of restricting the use of single-use grocery bags, or of imposing a fee or other restriction on single-use disposable grocery bags (see the discussion of AB 2449 and its restriction on fees). It can be used by local governments in the preparation of EIRs to assess the potential impacts of such ordinances. Using this MEA can help reduce the cost and time of preparation of agencies’ EIRs by reducing the need for independent research.

### Overview of Findings

- **Single-Use Plastic Bags:** Nearly 20 billion single-use high density polyethylene (HDPE) plastic grocery bags are used annually in California; most end up in landfills or as litter. Of the four types of bags considered, plastic bags had the greatest impact on litter.
- **Single-Use Paper Bags:** Kraft paper bags are recycled at a significantly higher rate than single-use plastic bags. Still, over its lifetime, a single-use paper bag has significantly larger greenhouse gas (GHG) emissions and results in greater atmospheric acidification, water consumption, and ozone production than plastic bags.
- **Single-Use Biodegradable Bags:** Although biodegradable bags are thought to be an eco-friendly alternative to HDPE plastic bags, they have greater environmental impacts at manufacture, resulting in more GHG emissions and water consumption than conventional plastic bags. In addition, biodegradable bags may degrade only under composting conditions. Therefore, when littered, they will have a similar impact on aesthetics and marine life as HDPE plastic bags.
- **Reusable Bags:** Reusable bags can be made from plastic or cloth and are designed to be used up to hundreds of times. Assuming the bags are reused at least a few times, reusable bags have significantly lower environmental impacts, on a per use basis, than single-use bags. Some of the reviewed LCAs indicate that use of the non-woven plastic reusable bag results in particularly large environmental benefits.
- **Effects of Policy Options on Single-Use Bags:** In other regions of the world, fees and bans on bags have resulted in dramatic drops in consumption. For instance, the Irish plastic bag tax immediately resulted in a greater than 90% reduction in use. Due to California law AB2449, no fee program on plastic bags can be introduced. However, bans on single-use plastic bags, as well as fees on other single-use bags, may be implemented to minimize use.

## Comparative Impacts of Grocery Bag Types

Table 1 presents a general overview of the comparative impacts of single-use plastic, single-use paper, single-use biodegradable, and reusable bags, based on a review of previous life-cycle assessments.

**Table 1: Comparative Impacts of Grocery Bag Types**

Environmental Issue <sup>(1)</sup>	Type of Bag			
	Single-use Plastic	Single-use Paper	Single-use Biodegradable	Reusable (any type)
Aesthetics (Primarily litter)	3	2	3	1
Agricultural Resources	Ins.	Ins.	Ins.	Ins.
Air Quality	2	3	3	1
- GHG Emissions	2	3	3	1
- Atmospheric Acidification and Criteria Pollutants	2	3	Ins.	1
- Ground-level Ozone	2	3	Ins.	1
Biological Resources (Primarily marine impacts)	3	2	3	1
Cultural Resources	Ins.	Ins.	Ins.	Ins.
Geology and Soils	Ins.	Ins.	Ins.	Ins.
Hazardous Materials	Sim.	Sim.	Sim.	Sim.
Hydrology and Water Quality	3	3 <sup>(2)</sup>	3	1
- Hydrology	3	2	2	1
- Water Consumption	2	3	3	1
- Water Quality	3	3	3	1
Land Use and Planning	Ins.	Ins.	Ins.	Ins.
Mineral Resources	2 <sup>(3)</sup>	3	3	1
Noise	Ins.	Ins.	Ins.	Ins.
Population and Housing	Ins.	Ins.	Ins.	Ins.
Public Services	3	2	3	1
Recreation	3 <sup>(4)</sup>	2	3 <sup>(4)</sup>	1
Transportation/ Traffic	Ins.	Ins.	Ins.	Ins.
Utility, Energy, and Service Systems	Ins.	Ins.	Ins.	Ins.
Solid Waste and Waste Reduction	3 <sup>(5)</sup>	3 <sup>(6)</sup>	3 <sup>(7)</sup>	1

**Table Notes:**

General: Relative effects are on a general scale of 1 to 3, with 1 representing lowest relative impact. "Ins." denotes insufficient information to make a judgment. "Sim." denotes similar levels of indirect impacts.

<sup>(1)</sup> Issues based on the CEQA Guidelines, Appendix G, with the addition of solid waste and waste reduction.

<sup>(2)</sup> Paper bags are less likely to contribute to trash/litter in surface waters, but require substantially more water for manufacturing than plastic bags.

<sup>(3)</sup> Plastic bags require less fossil fuel in their manufacture than other bags.

<sup>(4)</sup> Single-use plastic and biodegradable bags as litter can have a detrimental effect on the quality of recreational experience. Anecdotally, single-use paper bags are less common in litter.

<sup>(5)</sup> Single-use plastic bags occupy less space than other bags in landfills, but have a low rate of recycling.

<sup>(6)</sup> Single-use paper bags are commonly made of recycled material and have a much higher rate of recycling than single-use plastic bags.

<sup>(7)</sup> Single-use biodegradable bags can contaminate the plastic bag waste stream, complicating recycling efforts. They do not decompose readily in open environments; there are concerns that they are disposed of as litter rather than put into the trash bin.